



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/594,238

07/02/2007

Kenji Kubomura

062907

7370

38834

7590

09/22/2009

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
1250 CONNECTICUT AVENUE, NW  
SUITE 700  
WASHINGTON, DC 20036

EXAMINER

KATZ, VERA

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

09/22/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,238	<b>Applicant(s)</b> KUBOMURA ET AL.	
	<b>Examiner</b> Vera Katz	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06/29/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,6 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/29/09</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 5-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 5, line 2 recites "iron atoms of more than 90 atomic percent of metal atoms". This limitation does not appear to be found in the original disclosure.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 recites whisker comprising less than 10 atomic percent non-iron metal atoms and oxygen atoms. It is unclear if the recited percentage is calculated from the total sum of elements in the whiskers, from a sum of non-iron metal atoms and oxygen atoms, or a sum of total metal atoms? The iron atoms are specified as being calculated as a percent of metal atoms which it taken to mean total

Art Unit: 1794

metal atoms. Since the same is not recited for the non-iron metal atoms, it is not clear how the value of atomic percent is calculated.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 5-6 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi (20020136928). Hayashi teaches a structure comprising a substrate of iron-based alloy such as stainless steel; [0085] and hematite particles (that are iron oxide with the formula  $\text{Fe}_2\text{O}_3$ ), formed on the surface of iron-based alloy; [0103, 0111, 0112, 0114]. Hayashi shows that the hematite particles are oriented in a major axis direction, are acicular and considered to be whiskers erected on the surface of the substrate; [0020]. The reference further teaches, for example, the diameter of the iron oxide whiskers of 0.005-0.3  $\mu$ ; [0022]. This range is within the scope of the applicant's claimed range. The reference teaches an aspect ratio of 10:1 to 25:1; [0080]. This range is within the claimed range.

Considering claims 5-6 and 11, as taught by the art, the whiskers may contain sodium metal less than 200 ppm; [0070]. This range is within the claimed range for the non-iron metal atoms. Hayashi teaches high purity hematite whiskers, this teaching is considered to be a teaching of an iron oxide whiskers comprising iron atoms of more than 90 atomic percent of metal atoms. Hematite is iron oxide, thus it comprises oxygen

atoms. The recitation of claim 6 “ a whisker is made by bringing said iron based alloy into contact with oxidative atmosphere as to react surface iron atoms with oxygen atoms brought into contact therewith at high temperature ” of claim 6 is considered a process limitation that does not provide further structural limitations to the article as claimed.

### ***Response to Arguments***

4. Applicant's arguments filed 06/29/09 in response to the Office Action dated 04/01/09 have been fully considered.

5. In view of applicant's amendments and arguments, the applicant traverses the section 112, second paragraph rejection of claims 1-2 and 5-6, objection of claims 6 and 8 and objection to the specification. The arguments are convincing; the rejection of claims 1-2 and 5-6 under 35 U.S.C. 112(2), the objection of claims 6 and 8 and objection to the specification are withdrawn.

6. In view of applicant's amendments and arguments, the applicant traverses the rejection of claims 3-4 under 35 U.S.C. 102(b), claims 7-8 under 35 U.S.C. 103(a) over Tatsuya (JP 200-203998), claims 3-4 under 35 U.S.C. 102(b) over Den (6649824) and claims 7-8 under 35 U.S.C. 103(a) over Den (6649824)/ Tatsuya (JP 200-203998). The arguments are persuasive and the rejection above is withdrawn.

7. In view of applicant's amendments and arguments, the applicant traverses the rejection of claims 1-2 and 5-6 under 35 U.S.C. 102(b) over Hayashi (20020136928). The traversal is on the ground that the whisker by definition is a single crystal grown in a filamentary form while Hayashi particles are not whiskers because they are aggregates.

Art Unit: 1794

The Examiner disagrees. Hayashi teaches acicular hematite particles and acicular particles are known to be filamentary crystals, see, for example, as an illustration of an Examiner's position a publication of Karpinos (Institute of Problems in Materials Science, No12, p. 782, 1978) providing acicular filamentary crystals. In addition, whiskers can be aggregated, see for example, Yoshinaka (US 5,091,765, abstract) disclosing an aggregate of whiskers. The claims are directed to the presence of whiskers with a specific aspect ratio. Whether the whiskers are aggregated or not, the whiskers are present on the substrate and have the specific length to width ratio (aspect ratio) as claimed. Applicant's claim language does not preclude the presence of the whiskers in an aggregated form. Finally, as it was shown in the rejection section, Hayashi teaches acicular particles, oriented in major axis direction with the claimed aspect ratio. Thus, based on the aforementioned, the Hayashi iron oxide particles are considered to be whiskers and accordingly, for the reasons stated above, the rejection of claims 1-2 and 5-6 are maintained.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 1794

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Katz whose telephone number is (571)270-7082. The examiner can normally be reached on M - Th 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JENNIFER McNEIL can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vera Katz/  
Examiner, Art Unit 1794

/JENNIFER MCNEIL/  
Supervisory Patent Examiner, Art Unit 1794